

Arctic Ocean

Produced by the Cartographic Division
National Geographic Society
Editorial Staff, Washington, D.C.
National Geographic Magazine
Editorial Staff, Washington, D.C.
Washington, D.C., January 1990

Exploring and Mapping the Seafloor

Early scientists assumed the ocean to be bottomless—immense and mysterious realms inhabited by powerful gods and fantastical creatures. Forlorned Magellan, peering in 1511 at his voyage around the world, is said to have tossed lengths of rope over the side and waited patiently for the end to hit bottom. Seeing that it did not, he proclaimed that the ocean was "bottomlessly deep."

We chuckle at the tale, but Magellan was right in his day. Accurately has always been limited by technology. Confronting monsters in oceans and harbors, early mariners were generally concerned with ensuring that there was enough water beneath the ship's keel to prevent grounding. When the first regular charts were produced, the faith in depth the true shape and features of the seafloor. Indeed, it has only been within the past generation that large-scale maps of the ocean floor have been developed, and only in the last few decades that we have been able to measure these hidden landscapes with precision.

The whole matter of ocean-bottom mapping took its first steps in the 19th century when plans were made for the laying of the transatlantic telegraph cable. The project was led by the U.S. Naval Observatory, which had been studying the ocean floor for decades. The project was led by the U.S. Naval Observatory, which had been studying the ocean floor for decades. The project was led by the U.S. Naval Observatory, which had been studying the ocean floor for decades.

Many's 1857 map had been an early bathymetric chart of the North Atlantic. The method that produced this chart—the leaded weight and sounding line—was both laborious and fraught with error. Yet it remained the true technology available until World

The loss of *Flores* in 1912 prompted the introduction of the sounding line system. Later, sound navigation and ranging, or Sounding, which became more widely used, offered, was developed for underwater investigations, including detection of submarines.

After World War I, the Navy's Bureau of Naval Oceanography, which had been studying the ocean floor for decades, was developed for underwater investigations, including detection of submarines.

A major feature of the Navy's mission was its ability to map a ship's track soundings without stopping. Any ship with depth soundings in its hull could cross the ocean's hidden landscape, making it possible to produce a picture of the ocean's true shape by "sounding" the floor. The first bathymetric chart from such soundings appeared in 1921, and additional data were incorporated and published regularly thereafter.

The first bathymetric chart of the Arctic Ocean floor—measured to the one-inch level—was made in 1958, when the submarine *U.S.S. Nautilus* cruised beneath the surface ice packs of the North Pole, creating the first bathymetric chart of the Arctic Ocean floor.

into a midocean system, generally divided south or midoceanic in character. This allowed for an array of features to measure. Depth is a useful study as wide as the water is deep (bottom), at least.

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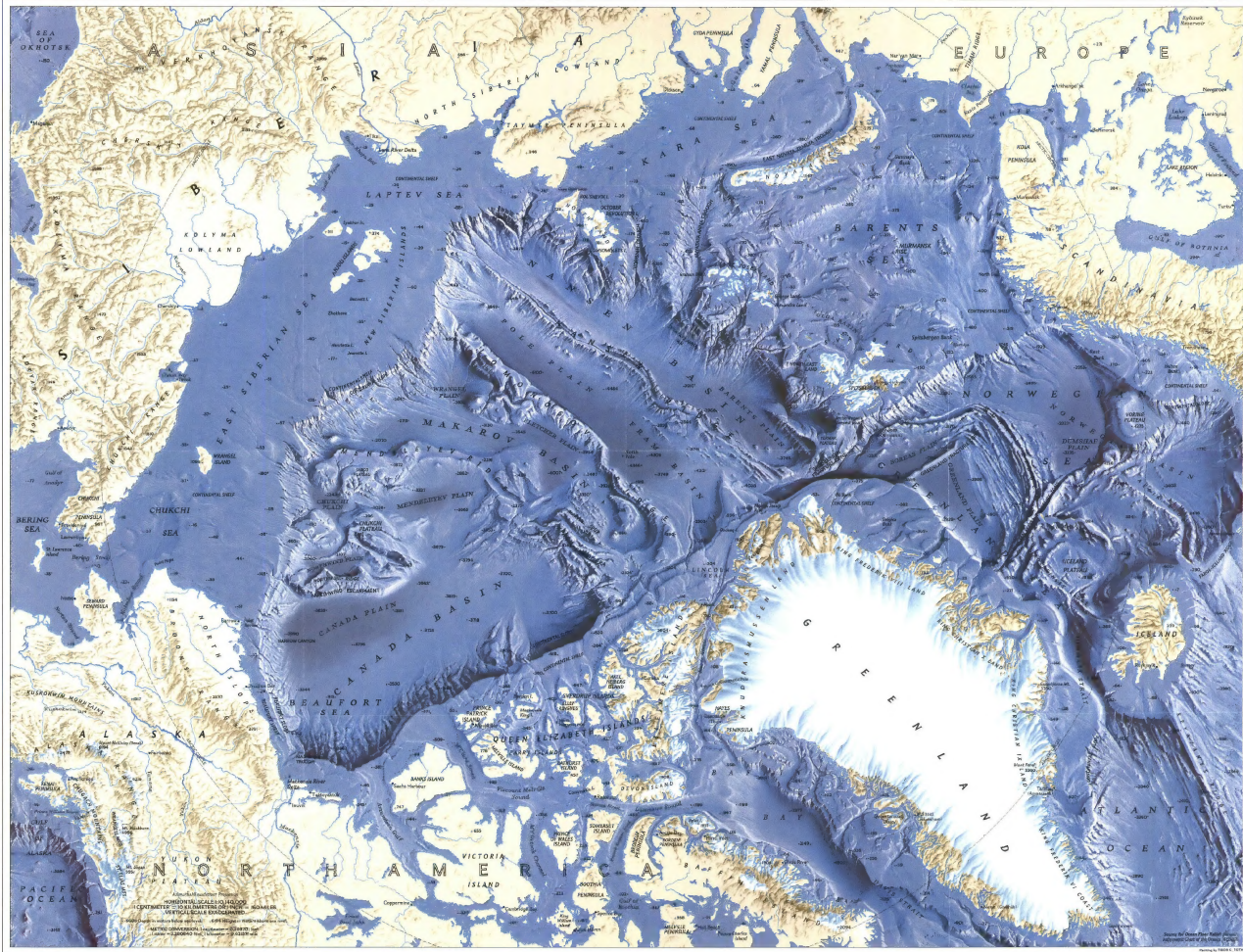
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MEMBER OF NATIONAL GEOGRAPHIC SOCIETY
EDITOR: GILBERT M. COSSOVICH, EDITOR
ILLUSTRATION: PHILIP J. HARTMAN
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Vertical Scale Exaggerated

